Author reply to Anonymous Referee #2

The format of this reply is as follows. The referee comments are cited in grey italic font. Our replies to the individual comments are given in regular, black font. We have attached a latexdiff version of the revised manuscript, displaying the changes we have made, at the end of our reply to Anonymous Referee #1. All line numbers given in the reply below refer to this latexdiff version.

The manuscript demonstrates the use of 3-d visualization of probabilities. The probabilities are for WCB trajectories. Computation of the probabilities of trajectories in 3 dimensions is not trivial and the manuscript includes a nice discussion on the issue. I also liked the way of visualise the contributions to low probabilites. I would recommend the manuscript for publication after addresses the minor comments below.

We would like to thank the Referee #2 very much for his/her positive feedback and appreciation of our work. In the following, we reply to the referee's comments.

1. I would the good to include a discussion about other applications for 3-d probabilities of trajectories. One example of another application would be atmospheric chemistry.

We agree that further possible applications can be mentioned in the manuscript. We have added a few lines discussing potential application to air chemistry, pollutant dispersion and volcanic ash to the discussion of the article (ll. 1186-1193).

2. In Section 3.1 and option S3: What in the CPU timing of the vertical interpolation or is the computational cost very low?

There is no additional vertical interpolation involved in setup S3. While the trajectories are started on a slightly different grid than for setup S2., the wind forecasts used to compute the trajectories remain the same. We have clarified the issue by adding a corresponding statement to ll. 554/555 in the revised manuscript.

3. On several places the model resolution is referred to as "spherical resolution". "Spectral resolution" is a better wording.

Thank you for pointing out this issue. We have changed the wording to "spectral" throughout both Part 1 and Part 2 of the paper.